

## Inquiry-based Research and Development Experiences in Agricultural Engineering



Students developed a mulch made of 100% post-consumer waste paper



The student-designed and built extruder applies mulch to students' test patches in a public demonstration of the project.

Two programs at Hodgson Vocational Technical High School have combined forces to provide students with authentic work-force experiences. The Environmental and Natural Resources program and the Power, Structural and Technical Systems program joined together in an Agricultural Engineering project which challenges students to resolve actual technical development challenges. Faced with real R & D problems, students are required to draw on a strong science, math, and mechanical skills base to find a resolution. DFSME funded the second year of a pilot program which will be used as a model for similar programs at other vocational technical schools in the state. In this pilot students were involved in developing a weed-suppressing mulch and a method of applying the mulch to crops. Working one day each week for the entire school year, students developed a mulch product using 100% recycled paper, and designed and built an extruder with which mulch was applied to test patches. The results produced in the students' test patches demonstrated that the product and application method were viable solutions to the problem. The instructors involved in the program ran a summer inservice program for all schools in Delaware that have Agriscience programs. 35 teachers attended, receiving curriculum materials as well as materials to assess achievement of math and science standards, and for students to self-assess their progress.



Mentors from DuPont's Stine Haskell Labs advised students working on the project.